UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,256	06/27/2001	Nir N. Shavit	SMY-041.01	1883

45774   7590   09/26/2005

KUDIRKA & JOBSE, LLP
ONE STATE STREET, SUITE 800
BOSTON, MA 02109

EXAMINER
TRUONG, CAMQUY

ART UNIT	PAPER NUMBER
2195	

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/893,256	SHAVIT ET AL.
	Examiner	Art Unit	
	Camquy Truong	2127	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
   application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-47 are presented for examination.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly
claiming the subject matter, which the applicant regards as his invention.

3.   Claims 1-47 are rejected under 35 U.S.C. 112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject

matter which applicant regards as the invention.

A. The following claim language is indefinite:

i. As per claims 1, 10, 15, 24, 33 and 42 (lines 8-9), it is uncertain

clearly understood " select repeatedly a current access mode from one of

a LIFO access mode and a FIFO access mode..." (i.e. or instead of and).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described
as set forth in section 102 of this title, if the differences between the subject matter sought to
be patented and the prior art are such that the subject matter as a whole would have been
obvious at the time the invention was made to a person having ordinary skill in the art to which
said subject matter pertains. Patentability shall not be negatived by the manner in which the
invention was made.

5.   Claims 1-4, 8, 15-18, 22, 24-27, 31, 33-36, 40 and 42 are rejected under

35 U.S.C. 103(a) as being unpatentable over Cornaby (U.S. Patent 5,410,722)

in view of Tallman et al (U.S. Patent 4,482,956).

6.   As to claims 1, 15, 24, 33, and 42, Cornaby teaches the invention

substantially as claimed including: A computer system configured to:

(A) Provide at least one task queue having a top end and a bottom end

and in which can be stored and from which can retrieved task identifier, which

identify tasks to be performed (abstract; col. 2, lines 5-7; col. 4, lines 2-10 and

lines 32-34; col. 7, lines 38-41 and lines 56-58); and

(B) For each provided task-queue, employ a separate execution thread

associated therewith to (col. 2, lines 47-49; col. 4, lines 2-4; col.8, lines 11-12):

i) select repeatedly a current access mode from one of a LIFO

access mode and a FIFO access mode (col. 4, line 61- col. 5, line 5);

ii) Perform dynamically identified tasks by repeatedly (Abstract; col.

7, lines 38-41; col. 4, lines 2-10):

(a) Popping a task identifier one of the top end or the bottom

end of that task queue in order to access that task queue in a LIFO access

mode or a FIFO access mode in accordance with the current access

mode thus selected (col. 4, lines 14-15; col. 4, line 60 - col.5, line6; col.5,

lines 13-15; col.8, lines 7-8, lines 11-13 and lines 27-28);

(b) So performing the task thereby identified as, in at least some instances, to find one or more further tasks to be performed (col. 2, lines 25-30; col. 4, lines 10-23; col. 5, lines 21-28); and

(c) Pushing onto the task queue task identifiers that identify any tasks thus found (col. 4, lines 39-40; col.5, lines 36-40; col.8, lines 15-16 and line 28).

7.   Cornaby does not explicitly teach the mode-selection criterion. However, Tallman teaches mode-selection criterion (col. 5, line 54 – col. 6, line 6).

8.   It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Cornaby and Tallman because Tallman's mode-selection criterion would increase the flexibility of Cornaby's system by providing a mode-selection criterion to allow plural programs on different processors in the multiprocessors to make insertions and deletions in a queue , therefore, improved the operating efficiency of a multiprocessor.

9.   As to claims 2, 16, 25 and 34, Cornaby teaches pushing occurs at the bottom end of each provided task queue, popping in accordance with the FIFO access mode occurs at the top end of each provided queue (col. 4, lines 64-67), and popping in accordance with the LIFO access mode occurs at the bottom end of each provided task queue (col. 4, line 67 – col. 5, line 3).

10.   As to claims 3, 17, 26 and 35, Cornaby teaches queue accesses in each provided task queue are circular (col. 2, lines 24-27).

11.   As to claims 4, 18, 27 and 36, Cornaby teaches computer system is configured to provide a plurality of the task queues (col. 2, lines 5-7).

12.   As to claims 8, 22, 31 and 40 Cornably teaches an execution thread associated with a task queue that is empty (col. 2, lines 31 –32; col. 3, line 67; col. 5, lines 9-12):

A)   pop a task identifier from a task queue other than the one with which it is associated (col. 4, lines 14-15; col. 4, line 60 - col.5, line6; col.5, lines 13-15; col.8, lines 7-8, lines 11-13 and lines 27-28);

B)   so performs the task thereby identified as, in at least some instances, to find one or more further tasks to be performed (col. 2, lines 25-30; col. 4, lines 10-23; col. 5, lines 21-28);

C)   pushed onto the task queue associated with it task identifiers that identify any tasks thus found (col. 4, lines 39-40; col.5, lines 36-40; col.8, lines 15-16 and line 28).

13.   Claims 5-7, 9-14, 19-21, 23, 28-30, 32, 37-39, 41 and 43-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cornaby (U.S. Patent 5,410,722) in view of Tallman, as applied to claims 1, 15, 24, and 33 above, and further in view of Applicant Admitted Prior Art (AAPA).

14.   As to claim 10, Cornaby teaches the invention substantially as claimed

including: define operation in which memory for data an object is allocated

dynamically (abstract; col. 7, lines 38-40) includes:

(A) Provide at least one task queue having a top end and a bottom end

and in which can be stored and from which can retrieved task identifier, which

identify tasks to be performed (abstract; col. 2, lines 5-7; col. 4, lines 2-10 and

lines 32-34; col. 7, lines 38-41 and lines 56-58); and

(B) For each provided task-queue, employ a separate execution thread

associated therewith to (col. 2, lines 47-49; col. 4, lines 2-4; col.8, lines 11-12):

i) select repeatedly a current access mode from one of a LIFO

access mode and a FIFO access mode (col. 4, line 61- col. 5, line 5);

ii) Perform dynamically identified tasks by repeatedly (Abstract; col.

7, lines 38-41; col. 4, lines 2-10):

(a) Popping a task identifier one of the top end or the bottom

end of that task queue in order to access that task queue in a LIFO access

mode or a FIFO access mode in accordance with the current access

mode thus selected (col. 4, lines 14-15; col. 4, line 60 - col.5, line6; col.5,

lines 13-15; col.8, lines 7-8, lines 11-13 and lines 27-28);

(b) So performing the task thereby identified as, in at least

some instances, to find one or more further tasks to be performed (col. 2,

lines 25-30; col. 4, lines 10-23; col. 5, lines 21-28); and

(c) Pushing onto the task queue task identifiers that identify any tasks thus found (col. 4, lines 39-40; col.5, lines 36-40; col.8, lines 15-16 and line 28).

15.   In addition, Tallman teaches a mode-selection criterion (col. 5, line 54 – col. 6, line 6).

16.   Cornaby and Tallman do not explicitly teach the garbage collection. However, AAPA teaches garbage collection. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Cornaby, Tallman and AAPA because AAPA's garbage collection would improve the efficiency of Cornaby and Tallman by having garbage collection to provide the automatic reclamation of resources in a dynamically allocated memory.

17.   As to claims 5, 9, 19, 23, 28, 32, 37, 41, AAPA teaches dynamically identified task is a garbage-collection task for performing for a given object associated with that task (page 1, lines 17-21);

Cornaby teaches processing that includes identifying in the given object references to other objects and thereby identifying the tasks of performing similar processing for those other objects (col. 2, lines 24-30; col. 3, lines 54-56; col. 5, lines 21-28).

18.   As to claims 6, 13, 20, 29 and 38, Cornably teaches the task identifiers are

identifiers of the objects associated with tasks that the task identifiers identify

(col.4, lines 3-4; col. 7, line 39).

19.   As to claims 7, 14, 21, 30 and 39, Conably teaches the task identifiers are

pointer to the objects associated with the tasks that the task identifier identify

(col. 2, lines 26-31; col.3, lines 34-36).

20.   As to claim 11, Cornaby teaches teach garbage-collection cycle includes

an operation that provides a plurality of the task queues (col. 2, lines 5-7).

21.   As to claim 12, Cornably teaches an execution thread associated with a

task queue that is empty (col. 2, lines 31 –32; col. 3, line 67; col. 5, lines 9-12):

        (A)   pops a task identifier from a task queue other than the one with it is

associated (col. 4, lines 14-15; col. 4, line 60 - col.5, line6; col.5, lines 13-15;

col.8, lines 7-8, lines 11-13 and lines 27-28);

        (B)   so performs the task thereby identified as, in at least some

instances, to find one or more further task to be performed (col. 2, lines 25-30;

col. 4, lines 10-23; col. 5, lines 21-28); and

        (C)   pushed onto the task queue associated with it task identifiers that

        identify any tasks thus found (col. 4, lines 39-40; col.5, lines 36-40; col.8;

        lines 15-16 and line 28).

22.   As to claims 43-47, Tallman teaches the mode-selection criterion is based

on the number of entries in the task queue (col. 5, line 54 – col. 6, line 6).

Conclusion

23.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Camquy Truong whose telephone number is (703) 305 -

8888. The examiner can normally be reached on 8AM – 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on 703-305-9678. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR of Public PAIP. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

have questions on access to the Private PAIP system, contact the Electronic Business

Center (EBC) at 866-217-9197(toll-free).

Camquy Truong

September 21, 2005
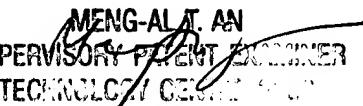
MENG-AI T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER